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19. The method of claim 18 wherein said step of controlling said HCl concentration includes adding water to said air sweep.
20. The method of claim 19 including a step of returning said air sweep and unreacted HCl to said reactor.

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21. The method of claim 17 wherein each reaction is carried out at about 180° F.
22. The method of claim 21 wherein each reaction is carried out at atmospheric pressure.
23. The method of claim 18 including a step of adding sulfuric acid to the HCl generator to replenish sulfuric acid consumed to make ferrous sulfate.

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(54) CONVERSION OF IRON CHLORIDE INTO IRON SULFATE SALT AND PRODUCTION OF BASIC FERROUS SULFATE

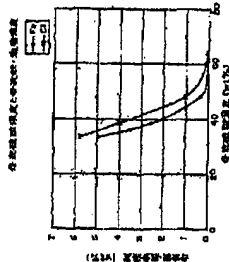
0.1 wt. %

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(57) Abstract

PROBLEM TO BE SOLVED: To provide a treatment method of a solution containing ferrous chloride and free hydrogen chloride the demand for a ferric chloride-precipitating agent which has been produced from copper etching waste and other plating liquid waste is being increased due to the chlorine gas handling and environmental problem.

SOLUTION: Sulfuric acid is added to an iron chloride solution in an amount of $\alpha/1.1$ equivalent based on the iron content and they are concentrated by evaporation with heat to $\alpha/20$ wt. %, preferably to 60-80 wt. % thereby the ferrous sulfate suitable for the basic ferric sulfate coagulating agent is obtained and hydrochloric acid can be recovered simultaneously. For example, as shown in the figure, the solubility of iron sulfate rapidly reduces at about 50 wt. % of free sulfuric acid concentration and almost all of chlorine components are stabilized at about 60 wt. % concentration, thus chlorine-free iron sulfate crystallizes out, while the chlorine content in the mother liquor decreases down to



DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is a graph which shows mother liquor sulfuric acid concentration when heating concentration of the sulfuric acid is added and carried out to the pickling waste fluid containing free hydrochloride and ferric chloride, and mother liquor iron and the level of chlorine.

[Drawing 2]It is a graph which shows the relation between the ferrous sulfate solubility at the time of investigating the influence of the isolation sulfuric acid concentration exerted on the solubility of ferrous sulfate, and isolation sulfuric acid concentration.

DRAWING 2

